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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,177	03/30/2006	Patrick Chaton	288708US2PCT	4057
22850	7590	10/19/2007		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER ALLI, IYABO	
			ART UNIT 2877	PAPER NUMBER
			NOTIFICATION DATE 10/19/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/574,177

Applicant(s)

CHATON ET AL.

Examiner

IYABO S. ALLI

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 06/27/2006.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Preliminary Amendments

Acknowledgment is given to cancelled claims 1-22 and new claim 23-44.

Specification

1. The disclosure is objected to because of the following informalities:

On page 16 of the Specification reference is made to 'pads 16' but the element '16' was not found in any of the 3 pages of drawings.

Appropriate correction is required.

Drawings

2. The drawings are objected to because element 3 in Fig. 1 is not described in the Specification.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering

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of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. Claim **28** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The purpose for utilizing different shapes between the first and second network of pads is not enabled in the Specification.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims **23-38** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Henderson et al.** (6,897,015) in view of **Lee et al.** (2004/0038307). ('**Henderson**' and '**Lee**')

Henderson discloses a device and method of use for detection and characterization of pathogens and biological materials comprising:

As to claim 23, Henderson discloses pads distributed on the surface of a support (Column 4, lines 52-53), the pads including at least one electrically conductive material and configured to immobilize the chemical or biological species (Column 9, lines 31-35).

Henderson fails to disclose the pads having a dimension less than 1. μ m.

However **Lee** teaches the pads having a dimension less than 1. μ m (Page 21, Paragraph 192).

It would have been obvious to one skilled in the art at the time of the invention to include the dimension size of the pad of **Lee** in the sensor of **Henderson** in order to produce more pads on a smaller surface, increasing the amount of particles able to be detected on the substrate surface.

As to claim 24, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 23 above, and **in addition to Henderson** teaches the pads are distributed on the surface of the support according to a two-dimensional matrix (Page 19 Paragraph 180).

As to claim 25, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 23 above **in addition to** the pads have a section in a shape of a circle or an ellipse (Page 19, Paragraph 180).

As to claim 26, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 25 above, and **in addition to Henderson** teaches the section of the pads have its largest dimension between 0.5.mu.m and 1.mu.m (Page 21, Paragraph 192).

As to claim 27, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 25 above, and **in addition to Henderson** teaches the section of the pads have its largest dimension less than 0.5.mu.m (Page 21, Paragraph 192).

As to claim 28, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 23 above, and **in addition to Henderson** teaches at least first and second networks of pads (Figs. 3 and 5a, Henderson).

Henderson in view of **Lee** ***fails to disclose*** the shape of a section of the pads of the first network being different from a shape of a section of pads of the second network however it would have been obvious to one skilled in the art at the time of the invention to be knowledgeable that the shape of the pads in each network will vary, if the depositing component is not equipped to deposit identical and uniform pads on the substrate surface.

As to claim 29, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 23 above, and **in addition to Henderson** teaches the electrically conductive material is gold or silver (Column 5, lines 15-16, Henderson).

As to claim 30, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 23 above, and **in addition to Henderson** the pads are formed by superposition of at least two different metallic layers (Page 21, Paragraphs 191-192).

As to claim 31, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 23 above, **in addition to** the pads are formed by superposition of a metallic layer integral with the support and an ultra thin layer of a material enabling attachment of the chemical or biological species (Page 21, Paragraph 195).

As to claim 32, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 23 above, **in addition to** the surface of the support is a surface of a material chosen among dielectric materials, semiconductor materials, and metallic materials (Page 21, Paragraph 195).

As to claim 33, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 23 above, **in addition to** means for increasing sensitivity of the sensor (Page 22, Paragraph 201).

As to claim 34, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 33 above, **in addition to** the means for increasing the sensitivity of the sensor including a thin metallic film deposited on the surface of the support (Page 18, Paragraph 170).

As to claim 35, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 34 above, **in addition to** a thin dielectric film is intercalated

between the thin metallic film and the pads to adjust plasmon resonance as a function of thickness of the dielectric layer (Page 21, Paragraphs 192).

As to claim 36, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 33 above, **in addition to** the means for increasing the sensitivity of the sensor includes a planer wave guide configured to convey a guided electromagnetic mode, the planar wave guide being formed on the surface or under the surface of the support and under the pads (Page, Paragraph 169).

As to claim 37, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 33 above **in addition to** the means for increasing the sensitivity of the sensor is constituted by grouping together of pads, a distance separating the grouped together pads being sufficiently small to allow an electromagnetic coupling between the grouped together pads (Page 19, Paragraph 180).

And as to claim 38, Henderson in view of **Lee** discloses all of the claimed limitations, as applied to Claim 33 above, **in addition to** the pads having a section in a form of an ellipse, and the means for increasing the sensitivity of the sensor is constituted by a small distance separating an end of a pad along the major axis of the ellipse from the end of the adjacent pad along the major axis of the ellipse, this small distance enabling an electromagnetic coupling between the pads (Figs. 3 and 5a, Henderson).

6. Claims **39-42 and 44** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Henderson et al.** (6,897,015) in view of **Lee et al.** (2004/0038307), and further in view of **Chee et al.** (7,226,734). ('**Henderson**', '**Lee**' and '**Chee**')

As to claim 39, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 33 above, **except for** the means for increasing the sensitivity of the sensor includes at least one particle associated with a pad.

However **Chee** teaches the means for increasing the sensitivity of the sensor includes at least one particle associated with a pad (Column 23, lines 50-53).

It would have been obvious to one skilled in the art at the time of the invention to include the use of at least one particle of **Chee** in the increasing means of **Henderson** in order to provide an obvious detection area with a noticeable marker when the sensing portion take places.

As to claim 40, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 39 above, **except for** the at least one particle is chosen from the group composed of metallic particles and fluorescent particles.

However **Chee** teaches the at least one particle is chosen from the group composed of metallic particles and fluorescent particles (Column 23, lines 58-63).

As to claim 41, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 39 above, **except for** the at least one particle is a particle fixed to the chemical or biological species.

However **Chee** teaches the at least one particle is a particle fixed to the chemical or biological species (Column 50, lines 45-50).

As to claim 42, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 39 above, **except for** the at least one particle is fixed to an object intended to be placed near to a pad.

However **Chee** teaches the at least one particle is fixed to an object intended to be placed near to a pad (Column 50, lines 45-50).

It would have been obvious to one skilled in the art at the time of the invention to include the particle of **Chee** in the sensor system of **Henderson** in view of **Lee** in order to provide an easier detection area and obvious marker when the sensing portion of the system take place.

And as to claim 44, Henderson in view of **Lee** discloses all of the claimed limitations as applied to Claim 23 above, **except for** the use of the microsensor or the nanosensor to carry out Raman spectroscopy at a level of detection by a reading system for identification of the chemical or biological species immobilized on the pads of the microsensor or the nanosensor.

However **Chee** teaches the use of the microsensor or the nanosensor to carry out Raman spectroscopy at a level of detection by a reading system for identification of the chemical or biological species immobilized on the pads of the microsensor or the nanosensor (Column 51, lines 13-18).

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It would have been obvious to one skilled in the art at the time of the invention to include the Raman spectroscopy of **Chee** in the sensor system of **Henderson** in view of **Lee** in order to enhance the measuring surface when detecting alterations in the optical signature of the particles.

7. Claim **43** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Henderson et al.** (6,897,015) in view of **Lee et al.** (2004/0038307), as applied to claim 42 above, and furthermore in view of **Pohl** (5,461,600). ('**Henderson**', '**Lee**')

As to claim 43, Henderson in view of **Lee** discloses all of the claimed limitations, as applied to Claim 39 above, **except for** the object is the tip of a near field optical microscope.

However **Pohl** teaches the object is the tip of a near field optical microscope (Column 5, lines 11-16).

It would have been obvious to one skilled in the art at the time of the invention to include the microscope of **Pohl** in the sensor system of **Henderson** in view of **Lee** in order effectively deposit particles in the desired area of the pad networks as known from near-field microscopy.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IYABO S. ALLI whose telephone number is 571-270-

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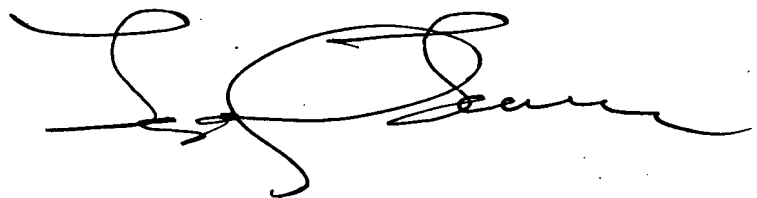
1331. The examiner can normally be reached on M-Thurs. 7:30a- 5pm, 1st F-OFF & 2nd F- 7:30a-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Toatley can be reached on 571-272-2059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

IYABO S. ALLI
Examiner
Art Unit 2877
October 2, 2007

J. A.



LAYLA G. LAUCHMAN
PRIMARY EXAMINER